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Appl. No. 10/656,779
Amndt. dated January 16, 2007
Reply to Office Action of October 16, 2006

Remarks

The present amendment responds to the Official Action dated October 16, 2006. The Official Action rejected claims 1-8 under 35 U.S.C. 103(a) as unpatentable over Dalton U.S. Patent No. 6,419,154 ("Dalton") in view of Matsushita U.S. Patent No. 6,762,674 ("Matsushita") and further in view of Ramamurthy U.S. Patent No. 6,853,294 ("Ramamurthy"). The Official Action rejected claims 10, 11, and 13-16 under 35 U.S.C. 103(a) as unpatentable over Dalton in view of Matsushita and further in view of Neumark U.S. Patent No. 6,736,316 ("Neumark"). The Official Action rejected claims 9 and 12 under 35 U.S.C. 103(a) as unpatentable over Dalton in view of Matsushita and further in view of Neumark and Ramamurthy.

These grounds of rejection are addressed below. Claims 1, 9, 10, and 12 have been amended to be more clear and distinct. Claims 1-16 are presently pending.

The Art Rejections

All of the art rejections hinge on the application of Dalton, Matsushita, and Ramamurthy, taken in combination, or of Dalton, Matsushita, and Neumark, taken in combination. As addressed in greater detail below, Dalton, Matsushita, Ramamurthy, and Neumark do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of Dalton, Matsushita, Ramamurthy, and Neumark made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

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The Official Action rejected claims 1-8 under 35 U.S.C. 103(a) as unpatentable over Dalton in view of Matsushita and further in view of Ramamurthy. In light of the present amendment to claim 1, this ground of rejection is respectfully traversed.

As presently amended, claim 1 addresses overlapping simultaneous transmission to a first electronic shelf label and receiving from a second electronic shelf label over separate communication channels. Such overlapping transmission and receiving over separate communication channels as claimed is not taught and is not made obvious by Dalton, Matsushita, Ramamurthy, or a combination thereof.

Dalton is assigned to the assignee of the present invention and represents one example of the admitted state of the art briefly discussed in the Background of the present invention. While Dalton recognized that downlink and uplink technologies may be different at col. 1, lines 29-38, as noted by the Examiner and as further discussed at col. 3, lines 3-16, it specifically addresses an arrangement in which a relay unit includes a single transmitter connected to multiple transmit antennae to provide improved RF transmission while maintaining lower costs. Col. 1, lines 53-56. Dalton does not teach and does not make obvious overlapping communication between a base station and a plurality of ESLs utilizing two separate communication channels as presently claimed. It does not appear to recognize the potential problem of insufficient bandwidth, nor does it suggest a solution thereto.

As previously discussed, Matsushita appears to be incapable of the presently claimed operation as its ESLs do not communicate directly with the base station, but rather communicate indirectly through intermediate relays as discussed further below. The Official Action

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specifically relies upon col. 5, lines 16-67 of Matsushita. That text describes the communication of base station 16 with an ESL at 2.4 GHz, as well as, communication by the ESL with a radio relay station at 300 MHz. Matsushita's Fig. 5 shows details of his relay stations 13-1 to 13-k. His relay station includes a single 2.4 GHz transmission section 137 which transmits ID information for an ESL transmitting a negative response to the base station. Col. 5, line 61-col. 6, line 19. Similarly, details of Matsushita's base station 16 are shown in Fig. 3. That base station has a single 2.4 GHz transmission section 164 and a single 2.4 GHz reception section 165. Col. 4, lines 63-67. To sum up, Matsushita lacks the circuitry to support concurrent communication between a base station and plural ESLs utilizing two separate communication channels as presently claimed. All of the wireless communication by the Matsushita base station appears to utilize the single 2.4 GHz channel, and there appears to be no basis to understand Matsushita as addressing concurrent transmission and reception by the base station.

To sum up, Dalton does not anticipate and does not make obvious the present claims. Matsushita provides no basis for modifying Dalton to meet the terms of these claims.

Adding Ramamurthy to Dalton and Matsushita does not cure their deficiencies as references with respect to claim 1, as amended. Ramamurthy teaches a radio module providing for RF communications with RFID tags. A receiver portion transmits an RF carrier signal which is received and modulated by RFID tags to return responses to the radio module. The radio module teaches simultaneous transmission of the RF carrier signal and receiving of backscattered signals reflected from the RFID tags. However, Ramamurthy does not teach and does not make obvious communication with separate devices over separate communication channels. The radio

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module of Ramamurthy uses the same communication technique to communicate with all tags and does not transmit a message to a first tag and receive a message from a second tag, with the transmission and receiving being carried out simultaneously over separate communication channels. Claim 1, as amended, therefore defines over the cited art and should be allowed.

The Official Action rejected claims 10, 11, and 13-16 under 35 U.S.C. 103(a) as unpatentable over Dalton in view of Matsushita and further in view of Neumark. In light of the present amendments to claim 10, this ground of rejection is respectfully traversed.

Claim 10 addresses concurrent receiving of a first message from a first electronic shelf label and transmission of a second message to a second electronic shelf label, receiving of the first message from the first electronic shelf label and transmitting of the second message to the second electronic shelf label occurring over separate communication channels. These limitations in the claimed combination are not taught and are not made obvious by Dalton, Matsushita, Neumark, or a combination thereof. As noted above with respect to claim 1, Dalton does not teach and does not make obvious concurrent communication between a base station and a plurality of ESLs utilizing two different communication modes, and Matsushita does not address concurrent transmission and reception by a base station.

Adding Neumark to Dalton and Matsushita does not cure their deficiencies as reference with respect to claim 10, as amended. Neumark states at col. 4, lines 21-23 that it uses "a network of ultra wide band (UWB) units capable, as a group, of precisely locating objects in three-dimensional space". Further "[m]iniature units may be built into electronic shelf units". Col. 4, lines 27 and 28. The UWB network may comprise a wired or wireless simplex or duplex

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electronic labeling system". Col. 4, lines 29-31. "In duplex systems the label responds with an acknowledgment when addressed." Col. 4, lines 38 and 39. At col. 6, lines 40-44, Neumark further states "Signals are sent, on demand, from the first transceiving means 40 to the data processing means 50 to confirm satisfactory operation of the identification labels". He also adds by "precisely timing these transmissions, and by using matched antennas at the nodes, highly efficient communication is possible, as is described in the references." Col. 7, lines 57-59. This discussion, while using the word "duplex", appears to describe an arrangement in which a label is addressed at a first time and then responds at a second time. Such an operation is not concurrent operation. At col. 8, lines 8-15, Neumark further addresses his location process in a similar manner. A location request is transmitted. It is received by all of the labels 30. The labels corresponding to the identification code responds and all other labels remain silent.

While Neumark admittedly uses the word "duplex" as noted above, it does not disclose both "receiving the response in a second time period from the first electronic shelf label" and "sending a second message during the second time period to a second electronic shelf label as claimed in claim 10, and does not disclose that receiving of a first message and transmission of a second message is carried out simultaneously over separate communication channels. Claim 10, as amended, therefore defines over the cited art and should be allowed.

The Official Action rejected claims 9 and 12 under 35 U.S.C. 103(a) as unpatentable over Dalton in view of Matushita and further in view of Neumark and Ramamurthy. In light of the present amendments to claims 9 and 12, this ground of rejection is respectfully traversed.

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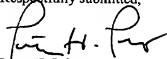
Claim 9 addresses an electronic shelf label system, comprising, inter alia, a base station operative to concurrently transmit a first message to a first electronic shelf label and receive an overlapping second message from a second electronic shelf label over separate communication channels. Claim 12 addresses a method of concurrently communicating with a plurality of electronic shelf labels, comprising, inter alia, transmitting the second message to a second electronic shelf label using the first frequency and first down link communication circuitry in the base station concurrently with said step of receiving the response, receiving of the first message from the first electronic shelf label and transmitting of the second message to the second electronic shelf label occurring simultaneously over separate communication channels. As noted above with respect to claim 1, neither Dalton, Matsushita, nor Ramamurthy teaches simultaneous transmission to an electronic shelf label and reception from a different electronic shelf label, with transmission and reception being conducted simultaneously over separate communication channels. As noted above with respect to claim 10, Neumark similarly does not teach or make obvious these limitations in the claimed combination. Claims 9 and 12, as amended, therefore define over the cited art and should be allowed.

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

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